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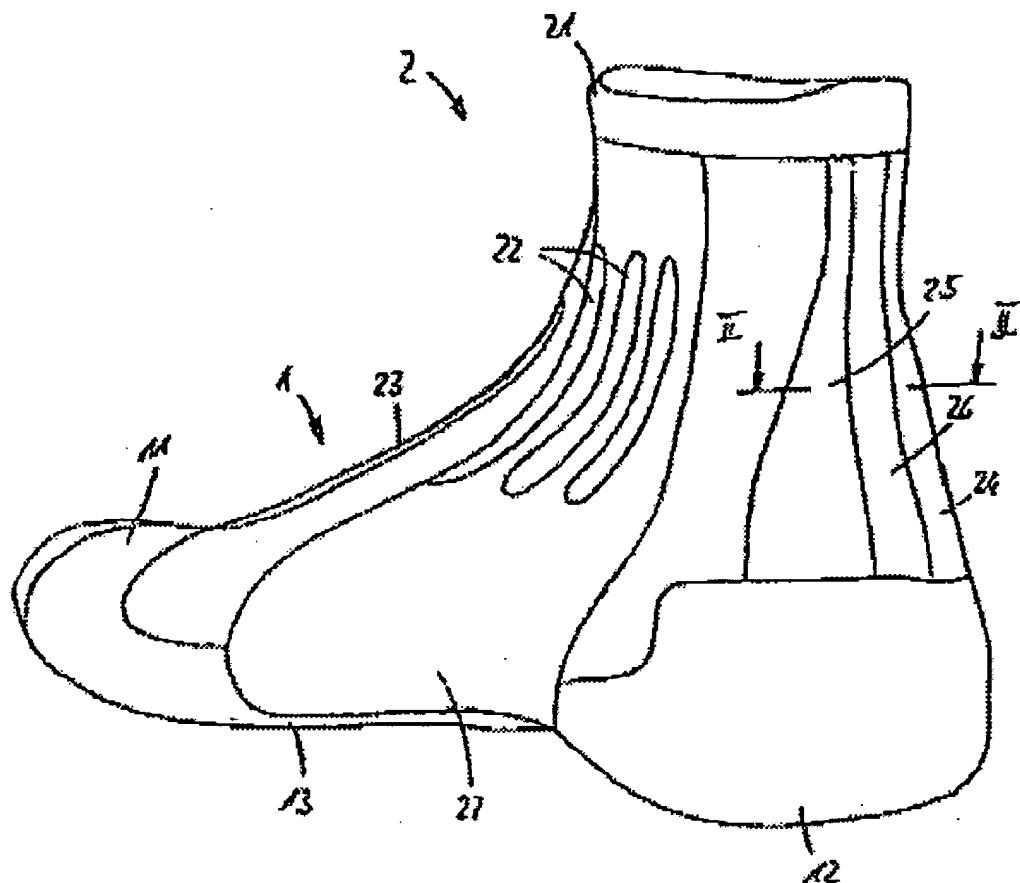
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(54) Title: SOCK



(57) Abstract: The invention relates to a sock, in particular to be used for sporting activities, comprising cushioning in the vicinity of the Achilles tendon. Said cushioning is formed by at least two spacer cushion pads (24, 25), placed on either side of the Achilles tendon and running alongside the latter.

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(57) **Abstract:**
[German-language version of abstract].

Harts

Sock

The invention relates to a sock, particularly for use in sporting activities, which has a cushion padding in the area of the Achilles tendon.

The human feet are, as a rule, accommodated inside solid footwear, particularly in sporting activities. They are, in particular, frequently entirely surrounded by socks. Because of the numerous and rapid movements, an increased friction on the foot is brought about inside the shoe during sporting activities, which is connected with dynamic pushing stresses. The area of the projecting Achilles tendon is particularly affected by this. Because the edge of the body of the shoe, which is generally hard and is, depending on the footwear, applied to the Achilles tendon at different heights, this tendon can, in addition, be very greatly stressed by rubbing- and sliding effects, which act aggressively in a point-like manner. This can lead to a premature fatigue of the foot, as well as to grazing injuries, even to the point of injuries of the Achilles tendon.

In order to reduce the friction, as well as to reduce pushing movements, it is known to provide socks with a softly cushioned toe-, sole-, and heel area, among other points (compare: DE 87 01 834 U1). It is also known to protect the area of the Achilles tendon by providing a cushion pad (compare: DE 200 16 825.8). The known types of socks are not, however, able to keep the rubbing- and sliding stresses that appear away from the Achilles tendon to a sufficient degree.

Here, the invention is intended to provide help. The task that forms the basis of the invention is that of further improving the protection of the Achilles tendon by the socks. This task is solved, in accordance with the invention, through the fact that the cushion padding is formed by at least two spacer cushion pads, which are positioned on both sides of and along the Achilles tendon.

By means of the invention, a sock is created, particularly for sports activities, which further improves the protection of the Achilles tendon inside the shoe. Through the provision of two spacer cushion pads, which are positioned on both sides and along the Achilles tendon, a distance between the Achilles tendon and the shoe is achieved, as the result of which rubbing- and sliding stresses can be kept away from the Achilles tendon.

In a further development of the invention, the transition piece is inserted between the spacer cushion pads. The spacer cushion pads are held in an optimal position by the inserted transition piece.

In an additional implementation of the invention, the transition piece is designed in the form of a cushion pad, which has a smaller thickness than the spacer cushion pad. The protection of the Achilles tendon is additionally increased by the additional cushion padding of the transition piece. On the one hand, it is ensured, through the lesser thickness of the transition piece, that the spacer cushion pads reliably maintain their

position on both sides of the Achilles tendon, even during extreme sporting activities. On the other hand, the Achilles tendon itself is additionally protected by the cushion padding of the transition piece against rubbing- and sliding stresses.

In another further development of the invention, the spacer cushion pads are adjusted in their form, in the area of the Achilles tendon, to the anatomical shape of the foot. By this means, the absorption of the dynamic pushing stresses is optimized by the cushion padding, and the strain on the Achilles tendon is minimized.

The sock is advantageously equipped with an X-cross bandage. The X-cross bandage supports the ankle in the transition area between the leg and the foot.

In the configuration in accordance with the invention, the sock has at least one air channel that extends from the cuff up to the weight-bearing area. This air channel optimizes the climate control for the foot inside the sock, and thus reduces the formation of sweat.

Other further developments and configurations of the invention are stated in the remaining sub-claims. One example of implementation of the invention is depicted in the diagrams, and will be described in individual terms in the following. These depict:

Figure 1: Perspective representation of the sock; and:

Figure 2: The section along the line II-II in Figure 1.

The sock selected as an example of implementation consists of a foot part (1) and a shaft (2). The foot part (1) has a toe area (11), a heel area (12), and a weight-bearing area (13) between the toe- and heel areas. The areas (11, 12, and 13) can, as depicted in the example of implementation, be made from reinforced material. The use of combinations of materials, such as virgin wool with elastomer fiber materials or elastane, for example, is also possible. The provision of additional cushion pads or paddings in the stated areas is also possible.

The shaft (2) is provided, on its end oriented away from the foot part (1), with a cuff (21). In the area of the ankle, the shaft (2) is provided with cushion pads (22), whereby bar-like cushion paddings are provided in the example depicted; other forms of cushion pads are possible. Cushion pads (23) forming a transition into the instep of the foot part are also positioned in the lower area of the shin.

In the area of the Achilles tendon, two spacer cushion pads (24, 25) are positioned on both sides of the Achilles tendon. In the example of implementation, the shape of the spacer cushion pads (24, 25) is adjusted to the anatomy of the foot in this area. The spacer cushion pads (24, 25) begin in the area of the heel, and end after tapering down to the cuff (21). A transition piece (26), which likewise proceeds between the heel area (12) and the cuff (21), and accommodates the Achilles tendon, is placed between the

spacer cushion pads (24, 25). The spacer cushion pads (24, 25) are designed in such a manner that they stand out distinctly relative to the transition piece (26) (Figure 2). By that means, it is guaranteed that the Achilles tendon has a sufficient distance from the surrounding footwear. Rubbing- and sliding effects are directly absorbed by the spacer cushion pads, without the Achilles tendon being stressed.

Furthermore, the sock can be equipped provided with an X-cross bandage -- not depicted --, which is made from an elastic, climate-controlling fabric. The X-cross bandage supports the ankle in the transition area between the leg and foot.

In the example of implementation, an air channel (27), which extends up to the cuff (21) and is formed from a climate-regulating net-type knit fabric, proceeds away from the weight-bearing area (13). The air channel (27) contributes to the diversion of moisture upwardly and away from the weight-bearing area. Such an air channel (27) can also be provided in the sock on the inner side of the leg.

The cushion pads are generally produced from plastic threads, compound fabrics or threads, or similar materials. In the example of implementation, the cushion pads of the sock are produced from internally hollow fibers, which are surrounded by wool or cotton. The internally hollow plastic threads are particularly effective for providing pushing forces and reducing pressures. The weight-bearing area (13) can be made from knit microfibers, which helps to reduce abrasion. In the toe- and heel area, the bed of the foot is produced from microfibers, as needed.

Although the description and the claims refer to socks, the invention is not restricted to these alone; rather, stockings, pantyhose, and the like, to which the invention likewise relates, are also subsumed under this term. The spacer cushion pads thereby do not obligatorily need to be guided from the heel area up to the cuff.

Patent claims

- 1) A sock, particularly for use in sporting activities, which has a cushion padding in the area of the Achilles tendon, characterized in that, the cushion padding is formed from at least two spacer cushion pads (24, 25), which are positioned on both sides of and along the Achilles tendon.
- 2) A sock in accordance with claim 1, characterized in that, a transition piece (26) is inserted between the spacer cushion pads (24, 25).
- 3) A sock in accordance with claim 2, characterized in that, the transition piece (26) is designed in the form of a cushion pad which has a smaller thickness than the spacer cushion pads (24, 25).
- 4) A sock in accordance with claim 2 or 3, characterized in that, the transition piece (26) is produced from climate-regulating fabric.
- 5) A sock in accordance with one of the claims 1 to 4, characterized in that, the spacer cushion pads (24, 25) are adjusted to the anatomical shape of the foot in the area of the Achilles tendon.
- 6) A sock in accordance with one of the claims 1 to 5, characterized in that, the spacer cushion pads (24, 25) consist of internally hollow fibers, which are surrounded by wool or cotton.
- 7) A sock in accordance with one of the claims 1 to 6, characterized in that, the sock has additional cushion pads (22, 23).
- 8) A sock in accordance with one of the claims 1 to 7, characterized in that, the sock is equipped with an X-cross bandage.
- 9) A sock in accordance with one of the claims 1 to 8, characterized in that, the sock has an air channel (27).

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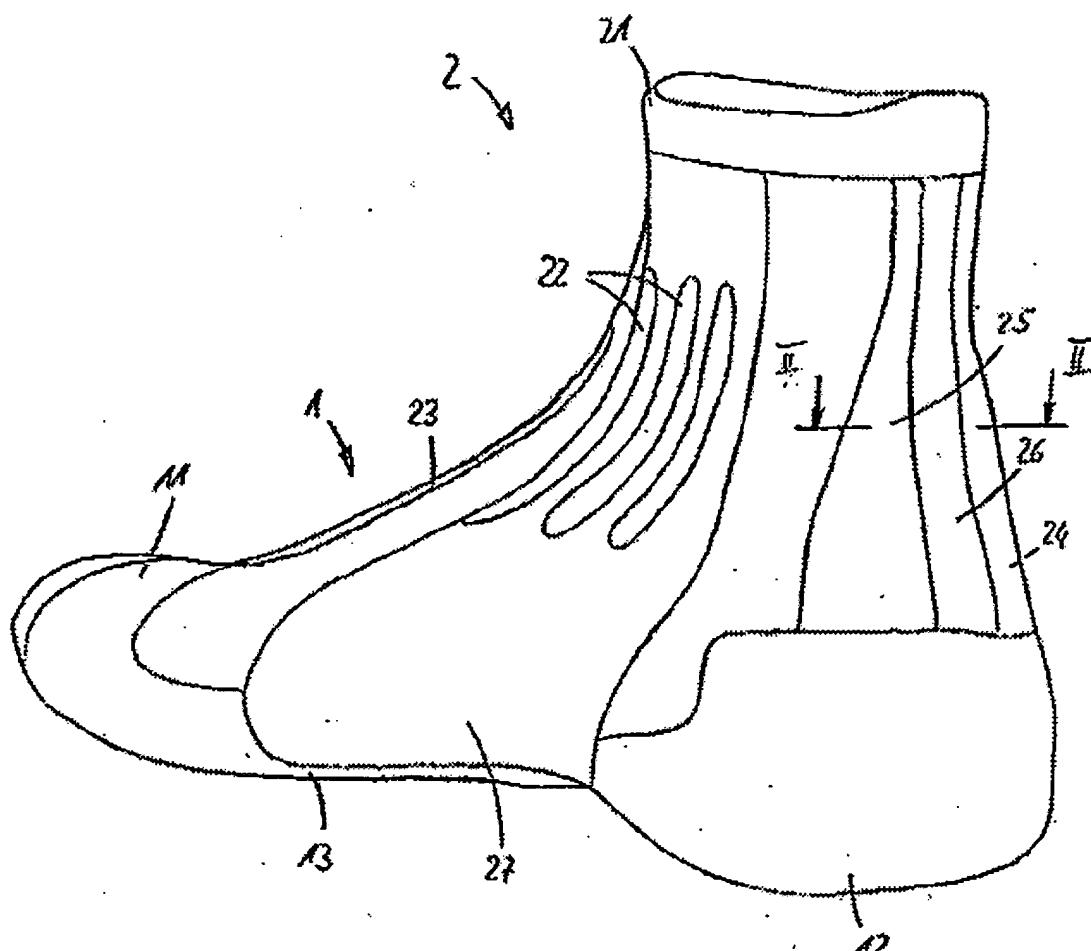


Fig. 1

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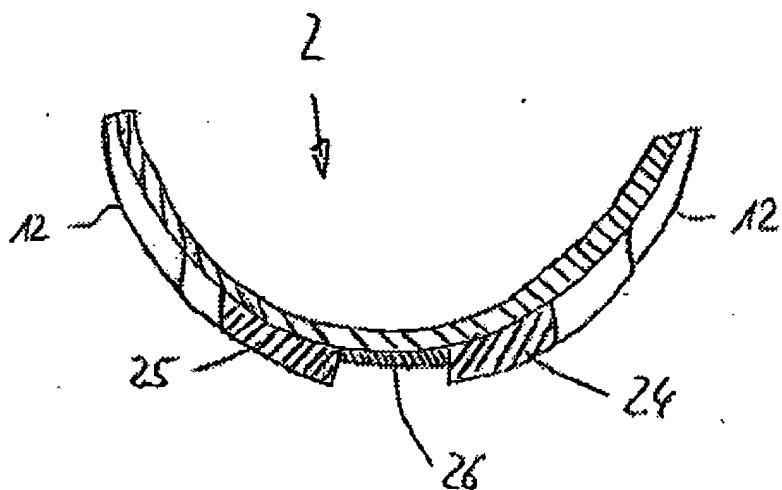


Fig. 2